

ABSTRACT

The present invention relates to Class-D amplifiers, and in particular to bit-flipping sigma-delta modulator (SDM) implementations of such amplifiers. Such amplifiers are particularly although not exclusively suitable for audio equipment such as hi-fi and personal music amplifiers. The present invention provides a bit flipping sigma delta modulator (BF SDM) having a multiple feedback loop filter structure. The modulator comprises a quantiser coupled to a bit flipping means, a look ahead quantiser to determine the next quantiser output, and a controller which determines whether to change the output of the bit flipping means. The modulator comprises a feedback loop arranged to add feedback from the output of the modulator to its input. The modulator comprises compensation means to adjust the states of the modulator in order to correct for bit flipping of the output of the quantiser. This adjusts the input to the quantiser to correspond to an input having feedback from a non bit flipped quantiser output.